



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/091,033	03/06/2002	Shigeru Kawamoto	N9450.0050/P050	6464
24998	7590	08/09/2007		
DICKSTEIN SHAPIRO LLP 1825 EYE STREET NW Washington, DC 20006-5403			EXAMINER ALI, MOHAMED HATEM	
			ART UNIT 3693	PAPER NUMBER
			MAIL DATE 08/09/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/091,033

Applicant(s)

KAWAMOTO ET AL.

Examiner

Mohamed H. Ali

Art Unit

3693

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 July 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 and 18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16, and 18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application
- ☐ Other: _____.

DETAILED ACTION

1. The following is a **final action** on merits. The amendments received on 07/03/2007 have been entered. **Claims 1-16 and 18** are pending.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

3. **Claims 1(amended)-14 and 18(amended)** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In **claims 1 and 18**, the recitations, "to optimize an objective function consisted of earning rate of all of a plurality of financial products and risk influencing for earning", "individual floating factor as unique factor of each individual financial product influencing for earning", "common floating factor as factor influencing for earning of overall financial products" and "processing divided every characteristic of said constraint expression" render the claims indefinite since individual/common floating factors and constraint expression are taken from arbitrary numbers and calculated through Matrix (Plural Matrices) a rectangular table consisting of abstract quantities and there is no new technical features for use and utility involved in it.

Art Unit: 3693

In claims 2-13, the recitation elements of coefficient matrix, partial matrix and diagonal matrix, render the claims indefinite since all are the results of calculations of arbitrary numbers and formulas.

Claim 14 depends from any of claims 1-13, and therefore is rejected for the same deficiency.

Claim Rejections - 35 USC § 101

4. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

5. **Claims 1 and 18** are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

The term "process" as defined in 35 U.S.C. § 100, means process, art or method, and includes a new use of a known process, machine, manufacture, composition of matter, or material.

The "processing divided every characteristic of said constraint expression" is taken from arbitrary numbers, abstract ideas of constraint expression and calculated through Matrix, a rectangular table consisting of abstract quantities and there is no new technical features for use in it.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless —

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. **Claims 1 (amended), 2-14,15(amended), (17-cancelled) and 18 (amended)**, as best understood are rejected under 35 U.S.C. 102(e) as being anticipated by Horrigan (US 6,493,682 B1).

As per claim 1 (amended), Horrigan et al discloses an optimal portfolio determining method for determining amounts of respective financial products among a plurality of financial products so as to optimize an objective function (see abstract, via optimizes and maximization of gains) consisted of earning rate of all of a plurality of financial products and risk influencing for earning, comprising:

input step of inputting constraint parameters in a constraint expression forming constraint condition for optimizing objective function consisted of an expected value of the earning rate of each individual financial product, individual floating factor as unique factor of each individual financial product influencing for earning, common floating factor as factor of influencing for earning of overall financial products, and risk influencing for earning rate and earning of overall financial product (see [Column 3, lines 25-45] via optimizing the objective function by limit order decision given by individual beliefs about

Art Unit: 3693

expected security returns and variance, risk aversion and portfolio investment goals and also commonly used mean variance analysis taking overall risk into account).

solving step of determining financial product to purchase and purchasing amount for maximizing said objective function on the basis of input data (see [column 4, lines 31-45] via enabling the investor to quantify the adverse selection problem).

wherein a coefficient matrix of said objective function, which consists of coefficients of said objective function, and coefficient matrix of said constraint expression, which consists of coefficients of said constraint expression, have a portion relating to individual floating factor and one portion relating to common floating factor, and processing divided every characteristic of said constraint expression (see col.11, lines 21-53; via vector and matrices)

As per claims 2 - 4, Horrigan et al discloses preliminary process step of processing of dividing a coefficient matrix appearing in said objective function into partial matrix relating to individual floating factor of each individual financial product, and a partial matrix relating to the common floating factor, upon determining the financial product to purchase and purchasing amount with matrix elements and diagonal components, (see [Column 5, line 1-45 and column 11, line 5-50] via placing limit order with discount from the current offer price and having analytical solution of N securities with optimum discount from $N \times N$ diagonal matrices with expected asset returns on various factors like each securities filled or partially filled).

As per claims 5, 9, and 13, Horrigan et al discloses preliminary process step of processing of dividing a matrix consisted of said constraint parameters into a partial matrix relating to said financial products and said common floating factor, a partial matrix relating to said common floating factor, a partial matrix relating to said financial product and purchasing amount thereof (col. 3, line 45-60) and a partial matrix relating to purchasing amount of each group of each group in the case where said financial products are grouped into a plurality of groups (see [Column 13, line 10-67] via another embodiment to determine the optimum discount Γ from the principal price of N securities to maximize the expected utility for investors through plurality products of groups like IBM,GE, RHAT and matrix formalism as before).

As per claims 6 and 10, Horrigan et al discloses partial matrix relating to said financial product and said common floating factor is a matrix taking a product of said financial product and said common floating factor as dimension (see [col.12, lines 20-60] via N securities of the matrix $N \times N$ having with discount factors, N is called it dimension).

As per claims 7 and 11, Horrigan et al discloses partial matrix relating to said common floating factor is a diagonal matrix having element in a portion of diagonal component corresponding to number of said common floating factor (see [col.11, lines 20-35] via $N \times N$ diagonal matrix and diagonal elements for discounts and factors)

As per claims 8 and 12, Horrigan et al discloses partial matrix relating to constraint for purchasing amount of said financial product is a diagonal matrix having element in a portion of diagonal component corresponding to number of said common

Art Unit: 3693

floating factors (see [Col.12, lines 1-60] via risky assets associate with risky returns through matrix and other elements and discount factors).

As per claim 14, Horrigan et al discloses display step outputting the risk indicative of variation of earning and earning rate consisting said objective function, (see [Column 4, line 35-45] via investor to quantify the adverse selection problem associated with uncertain order execution and a computer readable medium having stored thereon instructions for causing a central processing unit to execute with a data structures comprised of the data input and/ or outputs required for the invention).

As per claim 15 (amended), Horrigan et al discloses, a computer unit having storage device for storing the elements as mentioned in claim 1, 5 and 14 above (see column 4, lines 40-45) and storage device storing a portion relating to individual floating factor, one portion relating to common floating factor, and a data divided every characteristic of said constraint expression, in coefficient matrix of said objective function, which consists of coefficients in said objective function, and Coefficient matrix of said constraint expression, which consists of coefficients of said constraint expression (see col. 4, lines 40-50 and claim 31).

Claim 17(cancelled).

As per claim 18 (amended), Horrigan et al further discloses an optimal portfolio determining method for determining purchasing amounts of respective financial products among a plurality of financial products so as to optimize an objective function (see abstract, via optimize and maximization of gains) consisted of earning rate of all

of a plurality of financial products and risk influencing for earning, comprising:
input step of inputting constraint parameters in a constraint expression forming
constraint condition for optimizing objective function consisted of an expected value of
the earning rate of each individual financial product, individual floating factor as unique
factor of each individual financial product influencing for earning, common floating factor
as factor influencing for earning of overall financial products, and risk influencing for
earning rate and earning of overall financial product; and solving step of determining
financial product to purchase and purchasing amount for maximizing said objective
function on the basis of input data (see [Column 3, lines 25-45] via optimizing the
objective function by limit order decision given by individual beliefs about expected
security returns and variance, risk aversion and portfolio investment goals and also
commonly used mean variance analysis taking overall risk into account).

wherein coefficient matrix of said objective function, which consists of coefficients
of said objective function, and coefficient matrix of said constraint expression, which
consists of coefficients of said constraint expression, have a portion relating to individual
floating factor and a portion relating to common floating factor, and processing divided
every characteristic of said constraint expression (see col.11, lines 21-53; via vector and
matrices).

further comprising a storage medium storing a program readable by a computer,
which stores a program executing, said input step and solving step on the computer
(see Col. 4, lines 40-45).

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. **Claim 16**, is rejected under 35 U.S.C. 103(a) as being unpatentable over Horrigan et al in view of Rhee (US 2002/0138383 A1).

As per claim 16, Horrigan et al discloses all the elements of the claimed invention, but fails to explicitly disclose a server computer including respective storage devices and a plurality of client computers receiving information by said server computer for displaying that are connected through a network.

Rhee in the same field of financial planning and portfolio management discloses a server computer including respective storage devices and a plurality of client computers receiving information by said server computer for displaying that are connected through a network (see [0021-24] via Intra or Intra-net computer network system for computer server and client computers).

Therefore, from the teaching of **Rhee** it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the optimal order choice, evaluating uncertain discounted trading alternatives of Horrigan et al to include

Art Unit: 3693

the computer network of two or more computers connecting together using a telecommunication system as taught by **Rhee** to facilitate communicating and sharing resources between server and client computers.

Response to Arguments

10. Applicant's arguments filed on 07/03/2007 have been fully considered but they are not persuasive.

As per the remarks, applicant argues that among the limitations of the pending claims not present in Horrigan is a detailed model for optimizing the portfolio determination. Specifically, Horrigan's tool cannot deal with increased orders in real time. Horrigan discloses a formulation model for determining the optimal portfolio. However, Horrigan fails to disclose or teach a concrete or detailed model for optimizing the portfolio determination. In Horrigan, a general purpose-optimizing tool may be used. Accordingly, Horrigan's tool cannot deal with increased orders in real time. The Examiner respectfully disagrees.

Horrigan's method optimizes order decisions about expected security returns and variance, risk aversion and portfolio investment goals in real time to consider the maximization of gains in an order context as a function of both returns and the probability of the order being executed. It handles the case of multiple orders and enables an investor to consider an order strategy taking over all portfolio risk into account in practical world. It is unique as it simultaneously accounts for the opportunity

costs and the adverse selection costs of uncertain orders such as equity limit orders, POSIT trades, equity principal order trading, etc. in real time.

Conclusion

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Peters et al (2003/0088489 A1) discloses about the earning optimization by advisory software.

Michaud et al (6,003,018) discloses about portfolio optimization through his resampled efficient frontiers.

Art Unit: 3693


13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mohamed H. Ali whose telephone number is 571-270-3021. The examiner can normally be reached on 8.00 to 5.30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Kramer can be reached on 571-272-6783. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Mohamed H Ali
Examiner
Art Unit 3693

MA

 8-6-07
JAMES A. KRAMER
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3600